

REMARKS

In the Office Action, the Examiner objected to the drawings. The Examiner stated that Figure 1 has to be designated as prior art. The Examiner also objected to the Specification for certain informalities. The Examiner also provisionally rejected claims 1, 2, 5, 6, 8, 9, 12, and 13 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 16, and 19 of copending Application No. 10/716,265. The Examiner also rejected claims 3-4 and 10-11 under 35 U.S.C. §112 second paragraph, as being incomplete for omitting essential elements. The Examiner also rejected claims 8-14 under 35 U.S.C. §101 as being directed to non-statutory subject matter. The Examiner also rejected claims 1-14 under 35 U.S.C. §101 for lacking patentable utility. The Examiner also rejected claims 5-7 and 12-14 under 35 U.S.C. §102 (b) as being anticipated by U.S. Patent No. 6,160,846 to Chiang et al. ("Chiang"). The Examiner also rejected claims 1-4, and 8-11 under 35 U.S.C. §103(a) as being unpatentable over Chiang in view of U.S. Patent No. 7,079,581 to Noh et al. ("Noh").

In this Amendment, Applicants have amended claims 1, 3-5, and 8-12. Applicants have also added claims 15-18. Applicants have not canceled any claims. Accordingly, claims 1-18 will be pending after entry of this Amendment.

I. Objection to Drawings

In the Office Action, the Examiner objected to Figure 1. The Examiner stated that Figure 1 has to be designated as prior art. Applicants respectfully traverse the Examiner's objections to Figure 1. Specifically, Applicants submit that although the system of Figure 1 is known in the art, it illustrates a system where some embodiments of the invention are implemented on. Accordingly, Applicants have not designated Figure 1 as Prior Art. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the objections to Figure 1.

II. Objections to the Specification

In the Office Action, the Examiner objected to the disclosure for certain informalities. Specifically, the Examiner stated that on page 6, lines 13-14, there is an incomplete sentence. In this Amendment, Applicants have amended the Specification to correct the informality. Applicants submit that the changes do not add any new matter. Applicants respectfully request that the Examiner approve the amendments.

III. Double Patenting Claim Rejections

In the Office Action, the Examiner also provisionally rejected claims 1, 2, 5, 6, 8, 9, 12, and 13 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 16, and 19 of copending Application No. 10/716,265. Applicants respectfully request the double patenting rejections be placed in abeyance until the claims are allowed.

IV. Rejection of claims 3-4 and 10-11 under 35 U.S.C. §112

In the Office Action, the Examiner rejected claims 3-4 and 10-11 under §112 for being incomplete for omitting essential elements. The Examiner stated that the omitted element is "the value from which the product of the scaling value and scaling relaxation value is subtracted". In this Amendment, Applications have amended claims 3-4 and 10-11 to recite "subtracting the product of said scaling value and said scaling relaxation value from a result of said adding operation". Accordingly, Applicants respectfully request reconsideration and withdrawal of §112 rejection of claims 3-4 and 10-11.

V. Rejection of claims 1-14 under 35 U.S.C. §101

In the Office Action, the Examiner rejected claims 8-14 under §101 for being directed to non-statutory subject matter. Specifically, the Examiner stated the word "comprising" is not considered sufficient enough for linking a computer program with a computer-readable medium in statutory form.

In this Amendment, Applicants have amended the preambles of claims 8, 9, and 12. For instance, the preamble of claim 8 is amended to recite: "[a] computer-readable medium storing a computer program for execution by at least one processor, the program for implementing a method of scaling digital video information, the computer program comprising sets of instructions for:" Similar amendments are made to claims 9 and 12 preambles. Since claims 10-11 are directly or indirectly dependent on claims 8 and 9; and claims 13-14 are directly or indirectly dependent on claim 12, Applicants respectfully request reconsideration and withdrawal of §101 rejections of claims 8-14 for being directed to non-statutory subject matter.

In the Office Action, the Examiner also rejected claim 1-14 under §101 for lacking patentable utility. Specifically, the Examiner stated that, although the specification is directed to a video encoder, the steps claimed only teach setting quantization parameters, not an actual analog-to-digital conversion of data, or a resultant step with calculated parameters.

Applicants respectfully submit that the claims are directed towards steps used in rate control during encoding process of video information which is patentable subject matter. However, for expediting the prosecution, Applicants have amended claims 1 and 5 to recite encoding of digital video information by utilizing the adjusted scaling value. Applicants have also amended claims 8 and 12 to recite an additional step of encoding of digital video information by utilizing the running average complexity measure. Accordingly, Applicants respectfully request reconsideration and withdrawal of §101 rejections of claims 1-14 for being directed to non-statutory subject matter because of the lack of utility.

VI. Claims 1-4

In the Office Action, the Examiner rejected claims 1-4 under §103(a) as being anticipated by Chiang in view of Noh. Claims 2-4 are directly or indirectly dependent on claim 1. Claim 1 recites a method of scaling digital video information. The method accepts a scaling relaxation

value. The scaling relaxation value specifies an amount to relax a scaling performed to prevent buffer underflow or overflow. The method adjusts a scaling value with the scaling relaxation value. The method encodes the digital video information by utilizing the adjusted scaling value.

Applicants respectfully submit that Chiang, Noh, or their combination do not make claim 1 unpatentable for at least the following reasons. *First*, Chiang, Noh, or their combination do not disclose, teach, or even suggest an encoding method that accepts a scaling relaxation value where the scaling relaxation value specifies an amount to relax a scaling performed to prevent buffer underflow or overflow. In the Office Action, the Examiner states that Chiang discloses the claimed invention except for adjusting the quantization of an encoder based on a relaxation factor in order to prevent buffer overflow or underflow. The Examiner, however, does not state what limitations of claim 1 does Chiang disclose. Specifically, the Examiner does not state where in Chiang a scaling relaxation value that specifies an amount to relax a scaling performed to prevent buffer underflow or overflow is disclosed. Applicants submit that neither Chiang nor Noh disclose such a scaling relaxation value. If the Examiner does not agree, Applicants respectfully request that the Examiner to specifically point to the paragraph and line number where either Chiang or Noh disclose such a limitation.

Second, Chiang, Noh, or their combination do not disclose, teach, or even suggest an encoding method that adjusts a scaling value with a scaling relaxation value. In the Office Action, the Examiner correctly states that Chiang does not disclose adjusting a scaling value with a scaling relaxation value. *See*, page 7 of the Office Action. However, the Examiner cites column 8, lines 4-53 and column 7, lines 54-66 of Noh for disclosing such a limitation. The Examiner states that Noh discloses calculating quantization factor Q of a present frame t using deviation parameter D , which is based on the ratio of current bit rate to target bit rate. The Examiner also states that this adjustment to the quantization factor is only done when the quantization factor

would otherwise be outside a set range of allowed values. *See* pages 6-7 of the Office Action. The Examiner also states that Noh discloses that it was known to adjust quantization according to a deviation parameter to stay with a target bit. Applicants respectfully disagree with the Examiner's characterization of Noh. Specifically, the deviation parameter, D, disclosed in Noh is used to determine the degree of a variation in a parameter called, K which in turn is one of coefficients of a quantization factor variation. *See*, column 7, lines 52-53 and column 8, lines 12-14.

Applicants respectfully submit that in order to make claim 1 unpatentable, the Examiner has a *prima facie* obligation to show that Noh, Chiang, or their combination disclose an encoding method that adjusts a scaling value with a scaling relaxation value. None of the paragraphs cited and the text recited in the Office Action point to such a disclosure in the cited references. Accordingly, Applicants respectfully submit that the Examiner has failed to identify how the limitations of claim 1 are disclosed or made unpatentable by either Chiang.

In view of the foregoing remarks, Applicants respectfully submit that Chiang, Noh, or their combination do not render claim 1 unpatentable. As claims 2-4 are dependent on claim 1, Applicants respectfully submit that claims 2-4 are patentable over Chiang for at least the reasons that were discussed above for claim 1. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1-4.

VII. Claims 5-7

In the Office Action, the Examiner rejected claims 5-7 under §102(b) as being anticipated by Chiang. Claims 6-7 are dependent on claim 5.

Claim 5 recites a method of tracking digital video information complexity. The method determines a complexity measure for a current digital video picture. The method also combines the complexity measure for the current digital video picture to a running average complexity

measure for a series of digital video pictures in a manner that prevents the current digital video picture from significant changing of the running average complexity measure for a series of digital video pictures. The method encodes the digital video information by utilizing the running average complexity measure.

5 Applicants respectfully submit that Chiang does not anticipate claim 5 for at least the following reasons. *First*, Chiang does not disclose, teach, or even suggest a method that combines a complexity measure for the current digital video picture to a running average complexity measure for a series of digital video pictures in a manner that prevents the current digital video picture from significant changing of the running average complexity measure for the
10 series of digital video pictures.

In the Office Action, the Examiner cites Figure 2; column 9, lines 46-49; column 10, lines 18-27; and column 10, lines 33-49 of Chiang for disclosing limitations of claim 5. *See*, page 5 of the Office Action. The Examiner further states that Chiang discloses a coding method that constraints the quantizing scale to control the bit rate. The Examiner also states that among other
15 constraints, the quantizing scale depends on a complexity model which sets the complexity X of a macroblock I as the product of bit rate R and quantizer scale Q . The Examiner also states that the initial complexity value is set according to encoding of previous pictures of the same type currently encoded. Applicants respectfully submit that none of these alleged features disclosed by Chiang anticipate claim 5. In order to show claim 5 is anticipated, the Examiner has a *prima facie*
20 obligation to show that Chiang discloses a method that combines a complexity measure for the current picture to a running average complexity measure for a series of digital video pictures in a manner that prevents the current digital video picture from significant changing of the running average complexity measure for the series of digital video pictures.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Accordingly, Applicants respectfully submit that the Examiner has failed to identify how the limitations of claim 5 are disclosed in Chiang.

In view of the foregoing remarks, Applicants respectfully submit that Chiang does not render claim 5 unpatentable. As claims 6-7 are dependent on claim 5, Applicants respectfully submit that claims 6-7 are patentable over Chiang for at least the reasons that were discussed above for claim 5. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 5-7.

VIII. Claims 8-11

In the Office Action, the Examiner rejected claims 8-11 under §103(a) as being anticipated by Chiang in view of Noh. Claims 9-11 are dependent on claim 8.

Claim 8 recites a computer-readable medium that stores a computer program that can be executed by at least one processor. The program can implement a method of scaling digital video information. The computer program includes sets of instructions for accepting a scaling relaxation value. The scaling relaxation value specifies an amount to relax a scaling performed to prevent buffer underflow or overflow. The computer program also includes sets of instructions adjusting a scaling value with the scaling relaxation value. The computer program also includes sets of instructions for encoding the digital video information utilizing the adjusted scaling value.

Applicants respectfully submit that Chiang, Noh, or their combination do not make claim 8 unpatentable for at least the following reasons. *First*, Chiang, Noh, or their combination do not disclose, teach, or even suggest a computer program that accepts a scaling relaxation value where the scaling relaxation value specifies an amount to relax a scaling performed to prevent buffer

underflow or overflow. *Second*, Chiang, Noh, or their combination do not disclose, teach, or even suggest a computer program that adjusts a scaling value with a scaling relaxation value. Applicants take note that the Office Action does not indicate a ground of rejection for claim 8. Since claim 8 is a computer readable medium claim similar to claim 1, Applicants assume that
5 Examiner would have used the same grounds of rejection for claim 8 as used for claim 1. Accordingly, Applicants respectfully submit that the cited references do not make claim 8 unpatentable for at least the same reasons given in relation with claim 1 in Section VI, above

In view of the foregoing remarks, Applicants respectfully submit that Chiang, Noh, or their combination do not render claim 8 unpatentable. As claims 9-11 are dependent on claim 8,
10 Applicants respectfully submit that claims 9-11 are patentable over Chiang for at least the reasons that were discussed above for claim 8. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 8-11.

IX. Claims 12-14

In the Office Action, the Examiner rejected claims 12-14 under §102(b) as being
15 anticipated by Chiang. Claims 13-14 are dependent on claim 12.

Claim 12 recites a computer-readable medium that stores a computer program that can be executed by at least one processor. The computer program can track digital video information complexity. The computer program includes sets of instructions for determining a complexity measure for a current digital video picture. The computer program also includes sets of
20 instructions for combining the complexity measure for the current digital video picture to a running average complexity measure for a series of digital video pictures in a manner that prevents the current digital video picture from significant changing the running average complexity measure for the series of digital video pictures. The computer program also includes

sets of instructions for encoding the digital video information by utilizing the running average complexity measure.

Applicants respectfully submit that Chiang does not anticipate claim 12 for at least the following reasons. *First*, Chiang does not disclose, teach, or even suggest a method that combines a complexity measure for the current digital video picture to a running average complexity measure for a series of digital video pictures in a manner that prevents the current digital video picture from significant changing of the running average complexity measure for the series of digital video pictures.

In the Office Action, the Examiner cites claims 18-23 of Chiang for disclosing a software embodiment of the invention. Applicants assume that the Examiner has also used the same grounds of rejection as claim 5 for rejecting claim 12. In the Office Action, the Examiner cites Figure 2; column 9, lines 46-49; column 10, lines 18-27; and column 10, lines 33-49 of Chiang for disclosing limitations of claim 5. *See*, page 5 of the Office Action. The Examiner further states that Chiang discloses a coding method that constraints the quantizing scale to control the bit rate. The Examiner also states that among other constraints, the quantizing scale depends on a complexity model which sets the complexity X of a macroblock I as the product of bit rate R and quantizer scale Q . The Examiner also states that the initial complexity value is set according to encoding of previous pictures of the same type currently encoded. Applicants respectfully submit that none of these alleged features disclosed by Chiang anticipate claim 12. In order to show claim 12 is anticipated, the Examiner has a prima facie obligation to show that Chiang discloses a computer program that combines a complexity measure for the current picture to a running average complexity measure for a series of digital video pictures in a manner that prevents the current digital video picture from significant changing of the running average complexity measure for the series of digital video pictures.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Accordingly, Applicants respectfully submit that the Examiner has failed to identify how the limitations of claim 5 are disclosed in Chiang.

In view of the foregoing remarks, Applicants respectfully submit that Chiang does not render claim 12 unpatentable. As claims 13-14 are dependent on claim 12, Applicants respectfully submit that claims 12-14 are patentable over Chiang for at least the reasons that were discussed above for claim 12. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 12-14.

X. New claims

In this Amendment, Applicants have added new claims 15-18. Applicants submit that these claims are fully supported by the specification and are allowable over the cited references.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1-18 are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

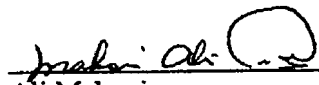
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Respectfully submitted,

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